

Quality of Life in Dyspepsia and its Subgroups Using EQ-5D (EuroQol) Questionnaire

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ABSTRACT

Background/Aim: Dyspepsia has a significant impact on the quality of life. Health-related quality of life (HRQoL) can be assessed by disease-specific and generic HRQoL instruments. The present study evaluated HRQoL and compared it among dyspepsia subgroups by using EQ (Euro QoL)-5D questionnaire. **Patients and Methods:** Patients with abnormal findings on upper gastrointestinal endoscopy were classified to have organic dyspepsia, whereas those with normal endoscopy were classified as functional dyspepsia if they met the ROME III criteria or as endoscopy negative recent dyspepsia if symptom duration was <6 months. HRQoL was assessed using the EQ-5D questionnaire, and the overall health status on a visual analogue scale (VAS); and the frequency of impairment in each dimension were compared between the dyspepsia subgroups. **Results:** The overall health status was affected equally in all three dyspepsia subgroups. Impairment in HRQoL was commonly seen in the dimensions of pain (98.4%), usual activities (66.20%), and anxiety/depression (70.60%), however, much less so in mobility (22.70%) and self-care (10.9%). Any impairment in HRQoL was not significantly different between the three subgroups in the dimensions of mobility and usual activities. Self-care was more commonly affected in organic dyspepsia, anxiety/depression was more common with functional dyspepsia, while pain, though significantly different among various subgroups, was very common in all three subgroups. **Conclusion:** HRQoL was equally affected in all three subgroups of dyspepsia but variably so in the different domains of EQ-5D. These differences need to be studied further to improve the management of different etiological subgroups of dyspepsia.

Key Words: Dyspepsia, endoscopy, quality of life

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Dyspepsia is a common symptom in the community, occurring in 7–41% of the people depending on the population studied and the criteria used to define the condition.^[1,2] It hinders daily activity and contributes considerably to social and economic burden both directly as a result of health care related costs and indirectly through work absenteeism. It has been estimated to cost the society approximately £1 billion per year.^[3] In a population-based study from Malaysia, the direct and indirect costs of dyspepsia were 14,816 USD per 1000 people in rural areas and

USD 59,282 per 1000 population in urban areas.^[4] Dyspepsia also has a significant impact on the affected person's quality of life which has been found to be lower than that of the population norms.^[5]

Health related quality of life (HRQoL) in dyspepsia can be assessed by disease-specific HRQoL instruments such as quality of life in reflux and dyspepsia (QoLRAD) questionnaire and the Nepean Dyspepsia Index, both of which are valid and reliable tools. However, generic HRQoL instruments such as EQ-5D are easier to apply and are especially useful in large scale population surveys of dyspepsia.^[6] EQ (Euro QoL)-5D-3L (three-level version),

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a standardized generic instrument for the measurement of HRQoL developed by the Euro QoL Group and introduced in 1990, has been validated as a reliable and acceptable questionnaire for the assessment of quality of life in patients with dyspepsia.^[6,7] It is simple, self-administered, and quantifies the overall health status as well as assesses the same semi-quantitatively in five different dimensions. However, very few studies have used EQ-5D questionnaire for the assessment of quality of life in patients with this condition. The present study assessed the quality of life in a tertiary care hospital setting in patients presenting with various causes of dyspepsia using this questionnaire.

PATIENTS AND METHODS

Consecutive patients aged above 18 years with dyspepsia of at least 4 weeks duration visiting the Department of Gastroenterology and Hepatology at Kasturba Hospital, Manipal between November 2013 and December 2014 were enrolled. Patients undergoing endoscopy for indications other than dyspepsia and pregnant women were excluded, as were patients with other diseases causing upper abdominal symptoms such as cholelithiasis and pancreatitis. The study protocol was approved by the institutional ethics committee, and informed consent was obtained from all the participants of the study.

All patients underwent diagnostic upper gastrointestinal endoscopy to determine the etiology of dyspepsia. Those with abnormal findings on endoscopy were classified to have organic dyspepsia, whereas patients with normal endoscopy were further classified as functional dyspepsia if they met the ROME III criteria for the same or as endoscopy negative recent dyspepsia if the duration of symptoms was less than 6 months.^[8]

Permission was obtained from the Euro QoL group for using the EQ-5D self-reporting questionnaire, which was administered in English or in the local Indian language of Kannada, Malayalam, or Hindi as per the patients' preference. The local language versions are the official language versions of EQ-5D created using standardized translation protocols that conform to internationally recognized guidelines.^[9,10] For those needing assistance, the questionnaire was read

out. EQ-5D records the patient's overall self-rated health on a vertical, visual analogue scale (VAS) where the endpoints are labeled "best imaginable health state" and "worst imaginable health state" corresponding to scores of 100 and 0, respectively. HRQoL was assessed in the five dimensions of mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension rated the health status at three levels – no problems, some problems, and severe problems. The respondent was asked to indicate his/her health state by ticking across the most appropriate statement in each of the five dimensions.

The EQ-5D values in each dimension were further dichotomized into those reporting no problems and those reporting any problems (i.e., some problems and severe problems) and expressed as a percentage of the total number of patients for each group. In addition, those reporting severe problems were analyzed separately. These data as well as the VAS score were then compared between the three subgroups of dyspepsia.

Statistical analysis was done using the Statistical Package for Social Sciences version 16 (SPSS Inc., Chicago, IL, USA). Chi-square test was used for nonparametric and analysis of variance (ANOVA) for parametric data. When the latter results were found to be statistically significant, *post hoc* analysis was performed to compare any two groups. A *P* value of less than 0.05 was considered to be statistically significant.

RESULTS

A total of 900 patients seen between November 2013 and December 2014 were included. Among them, 390 (43.30%) were found to have organic dyspepsia, 311 (34.60%) had functional dyspepsia, and 199 (22.10%) had endoscopy negative recent dyspepsia. The baseline characteristics of the patients in the three subgroups are shown in Table 1. Among those with organic dyspepsia, 50 (5.5%) had malignant lesions comprising gastric cancer in 28 (3.1%), esophageal cancer in 20 (2.2%), and duodenal adenocarcinoma in 2 (0.2%). Benign lesions were seen in 340 (37.8%), distributed as GERD (135, 15%), duodenal ulcers (123, 13.7%), gastric ulcers (86, 9.6%), gastric erosions (30, 3.3%), and duodenal erosions (23, 2.6%).

Table 1: Baseline characteristics of the study patients

	Organic dyspepsia (n=390)	Endoscopy negative recent dyspepsia (n=199)	Functional dyspepsia (n=311)	P
Mean duration of symptoms, Months (mean±SD)	18.73±36.68	3.29±1.98	48.50±57.01	<0.001
Males, n (%)	304 (77.9%)	141 (70.9%)	233 (74.9%)	0.164
Females, n (%)	86 (22.1%)	58 (29.1%)	78 (25.1%)	
Mean Age, Years (mean±SD)	65±14.31	41.08±12.84	43.15±12.14	<0.001

SD: Standard deviation, Significant compared to organic dyspepsia on post hoc analysis (*P*<0.001)

In the dyspeptic patients, the overall self-rated health expressed as VAS was affected in all three subgroups of dyspepsia, without any statistically significant difference between them [Tables 2 and 3]. Any impairment in HRQoL was commonly seen in the domains of pain (886; 98.4%), usual activities (596; 66.20%), and anxiety/depression (635; 70.60%), however, much less so with mobility (204; 22.70%) and self-care (98; 10.9%).

Any impairment in HRQoL was not significantly different between the three subgroups of dyspepsia in the domains of mobility and usual activities [Table 3]. However, the three groups were significantly different for the domains of self-care and anxiety/depression; the former was more common in patients with organic dyspepsia and the latter more common in patients with functional dyspepsia.

On comparing patients with severe impairment in HRQoL among the three groups of dyspepsia, as is done by Euro

QoL group, a statistically significant difference was seen only in the domain of anxiety/depression [Table 4]. Patients with endoscopy negative recent dyspepsia and functional dyspepsia had severe impairment more commonly in this domain when compared to organic dyspepsia.

DISCUSSION

The present study has shown that dyspepsia commonly and quite considerably impaired the overall state of health assessed as VAS using EQ-5D. This impairment was more often in the domains of pain, anxiety/depression, and usual activity compared to mobility and self-care. By dividing dyspeptic patients into etiologically different subgroups, namely organic dyspepsia, functional dyspepsia, and endoscopy negative recent dyspepsia, in the present study, we have further shown that the overall state of health was commonly and equally affected in all the three subgroups, whereas there were some differences in the frequency of impairment of HRQoL in different domain in these subgroups. To the best of our knowledge, this is the only hospital-based study which has compared HRQoL in the subgroups of dyspepsia using EQ-5D questionnaire. A previous study using EQ-5D in a secondary care hospital setting, patients with dyspepsia and headache had greater severity of the latter symptom resulting in lower scores for HRQoL compared to those without dyspepsia.^[11]

Two previous community-based studies using EQ-5D have shown that HRQoL was significantly affected in dyspeptics compared to healthy adults.^[12,13] The overall impairment

Table 2: Visual analogue score for overall health status and frequency of any impairment in health-related quality of life in different domains in patients with dyspepsia

Domains	Values
Mean VAS (mean±SD)	67.61±13.96
Mobility <i>n</i> (%)	204 (22.70%)
Self-care <i>n</i> (%)	98 (10.90%)
Usual activities <i>n</i> (%)	596 (66.20%)
Pain <i>n</i> (%)	886 (98.40%)
Anxiety/depression <i>n</i> (%)	635 (70.60%)

VAS: Visual analogue scale, SD: Standard deviation

Table 3: Overall health status and the frequency of any impairment in health-related quality of life in the different domains in the dyspepsia subgroups

	Organic dyspepsia (<i>N</i> =390)	Endoscopy negative recent dyspepsia (<i>N</i> =199)	Functional dyspepsia (<i>N</i> =311)	<i>P</i>
Overall health as mean visual analogue score (mean±SD)	67.06 ±14.16	68.39 ±15.01	67.80 ±13.00	0.526
Mobility <i>n</i> (%)	84 (21.50%)	49 (24.60%)	71 (22.80%)	0.697
Self-care <i>n</i> (%)	54 (13.80%)	13 (6.50%)	31 (10.00%)	0.022
Usual activities <i>n</i> (%)	254 (65.10%)	132 (66.30%)	210 (67.50%)	0.80
Pain <i>n</i> (%)	379 (97.20%)	199 (100.00%)	308 (99.00%)	0.019
Anxiety/depression <i>n</i> (%)	225 (57.70%)	154 (77.40%)	256 (82.30%)	<0.001

SD: Standard deviation

Table 4: Severe impairment in the health-related quality of life in the dyspepsia subgroups

	Organic dyspepsia (<i>N</i> =390)	Endoscopy negative recent dyspepsia (<i>N</i> =199)	Functional dyspepsia (<i>N</i> =311)	<i>P</i>
Mobility <i>n</i> (%)	2 (0.5%)	0 (0%)	0 (0%)	0.270
Self-Care <i>n</i> (%)	2 (0.5%)	1 (0.5%)	0 (0%)	0.452
Usual activities <i>n</i> (%)	22 (5.6%)	1 (5.0%)	17 (5.5%)	0.95
Pain <i>n</i> (%)	110 (28.2%)	52 (26.1%)	67 (21.5%)	0.128
Anxiety/depression <i>n</i> (%)	62 (15.9%)	65 (32.7%)	109 (35.0%)	<0.01

of health in the present study is similar but slightly higher compared to the results of these studies. The frequency of any impairment in the HRQoL was considerably higher in all the five domains compared to the rural populations from Malaysia.^[13] These results are not surprising because the present study was hospital-based unlike the latter two. On the other hand, the impairment in mobility (45%) and self-care (58%) were more common, and that in usual activity (45%), pain (40%) and anxiety/depression (55%) were less common in the urban Malaysian population compared to our patients. Such high prevalence of impairment in the domains of mobility and self-care reported by the Malaysian urban dyspeptics compared to dyspeptics from the Malaysian rural population (4 and 1.8%, respectively) and our own patients (22.7 and 10.9%, respectively) is surprising.^[12,13] The reasons for these differences in the impairment in the different domains observed in the three studies are not clear. The hospital and community bases from which the study populations were drawn is unlikely to explain these differences. Male predominance, a slightly higher mean age in our patients, and the likely differences in the distribution of underlying causative diseases between the three studies could be other reasons. Whether the differences were further compounded by the fact that the questionnaires relate to the patients' own subjective assessment of their HRQoL and are self-administered need to be addressed in further studies. Nonetheless, what is clear is that impairment of overall health is common in dyspeptics, and that different domains contribute variably to such impairment in different patient populations and in different etiological subgroups.

Dyspepsia is a common symptom in the general population, most such patients having mild symptoms, hardly having organic disease as underlying cause, and seldom seeking medical advice.^[8] Most patients with dyspepsia lasting at least 6 months have functional disease, a condition which is benign in terms of long-term prognosis, but nonetheless, a common reason for medical consultations and work absenteeism. Organic causes of dyspepsia, comprising a heterogeneous group of treatable or potentially incurable diseases such as peptic ulcer and gastric malignancy, respectively, constitute a smaller proportion of patients undergoing upper gastrointestinal endoscopy.^[14,8] The hospital-based nature of the present study, including patients with more severe symptoms, and the classification of dyspeptic patients into three etiological subgroups based on endoscopy, provides important insights into the quality of life in patients with this condition.

Impairment due to pain or discomfort was reported by a large majority of our patients, and though significantly different between the subgroups, was very common in all three. The fact that the definition of dyspepsia itself encompasses the term pain or discomfort would explain this.^[14,13] The

commonness of problems in the domain of anxiety/depression indicate the associated psychological disorders, which are common in patients with dyspepsia.^[6,12,13] Any impairment and severe impairment due to anxiety/depression, while also being common in organic dyspepsia, was most often seen in patients with functional dyspepsia. Mental distress and psychological illnesses, especially anxiety and to a lesser extent depression, are commonly associated with functional dyspepsia, though this has not been consistently shown in all studies.^[15,16] The impairment of HRQoL in 82.3% patients with functional dyspepsia in this domain in our study may appear high. Unlike in studies evaluating the frequency of psych morbidity in functional dyspepsia, the figure here represents the patients' perception that anxiety and/or depression affected their wellbeing. Psychological factors have been shown to affect the severity of symptoms in dyspeptics, and thereby further impairing HRQoL in these patients.^[17,18]

The three subgroups differed significantly from each other in the proportion with impaired HRQoL in self-care, which was the highest in organic dyspepsia possibly because this subgroup included malignancies, which can affect self-care. However, impairment in the domain of mobility affecting a similarly small number of patients with organic disease compared to other subgroups may appear surprising. This could be because the patients were evaluated at the time of diagnosis. Even organic dyspepsia rarely interferes with mobility until the underlying disease is advanced.^[6] What is striking is that an equally high proportion of patients with recent endoscopy negative dyspepsia and functional dyspepsia reported any impairment in HRQoL related to their usual activity. However, severe impairment in this dimension was seen only in a minority in the three subgroups.

Endoscopy negative recent dyspepsia may represent a heterogeneous group and combining them into a subgroup may appear problematic. Being a hospital-based study, all such patients enrolled in our study may have had more severe symptoms or higher concerns about organic disease. Hence the impaired HRQoL seen in this group may be more than what one would expect in short lived dyspepsia. However, it is also possible that many of these patients may eventually have received a diagnosis of functional dyspepsia which can, by definition, be diagnosed only when their symptoms persist for longer than 6 months.

Most but not all studies on dyspepsia have shown a female preponderance.^[12,13,19] The male preponderance in our series could reflect the gender differences in healthcare seeking behavior often seen in hospital-based studies and may not reflect the community prevalence of dyspepsia. Our purpose was to evaluate HRQoL in patients presenting to a tertiary care hospital for evaluation and to compare the same in those with organic and functional dyspepsia.

The magnitude of impairment in HRQoL seen in dyspepsia could explain the loss of productivity at work from this condition. Aiming at appropriate improvement in HRQoL as a part of the outcome of treatment in dyspepsia, short lived or functional, thus assumes great socioeconomic importance.

CONCLUSION

In conclusion, we have shown that dyspepsia affected the quality of life variably in the different domains of EQ-5D. These differences need to be studied further so that the resultant knowledge can be applied to improve the management of different etiological subgroups of this condition.

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Conflicts of interest

There are no conflicts of interest.

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